

What is claimed is:

1. An apparatus for securing a foot of a wearer in a footwear item, the footwear item having an opening to receive a foot disposed generally opposite to a heel section of the footwear item and a closure configured to secure the opening, the apparatus comprising:

5 pivot members disposed on opposing sides of the closure, each of the pivot members being positioned on a surface of the footwear item between the opposing sides of the closure and the heel section; and

a securing device including:

10 a plurality of end sections, each of the end sections including a fastener-receiving opening configured for a fastener to pass therethrough; and

a removable force member extending from the end sections and configured to curve around the pivot members and engage the closure such that tension applied to the fastener applies force to the end sections resulting in tension in the force member causing a securing  
15 force being applied against the closure.

2. The apparatus of Claim 1, wherein each of the pivot members includes at least one pivot slot formed in the surface of the footwear item.

3. The apparatus of Claim 2, wherein each of the pivot members includes a single pivot slot in the surface of the footwear item, such that the force member extends from the  
20 end sections, enters beneath the surface of the footwear item, and curves around the single pivot slot toward the closure.

4. The apparatus of Claim 2, wherein each of the pivot members includes a pair of pivot slots in the surface of the footwear item, such that the force member extends from the end sections, enters beneath the surface of the footwear item, and curves toward the closure  
25 at a first pivot slot, and the force member extends outside the surface of the footwear item and continues extending toward the closure at a second pivot slot.

5. The apparatus of Claim 1, wherein each of the pivot members includes a ring mounted on the outer surface of the footwear item, such that the force member extends from the end sections and curves around the ring toward the closure.

30 6. The apparatus of Claim 5, wherein each of the pivot members is further secured to a securing harness, the securing harness including a heel strap extending between the rings

beneath the heel and an Achilles strap extending between the rings around an Achilles region.

7. The apparatus of Claim 1, wherein the force member includes a strap and the fastener-receiving openings are formed by folding back ends of the strap and attaching the ends of the strap to a body of the strap.

8. The apparatus of Claim 1, wherein each of the end sections includes a loop coupled to ends of the force member.

9. The apparatus of Claim 1, further comprising a retaining mechanism configured to maintain the force member at a predetermined position relative to the closure.

10. The apparatus of Claim 9, wherein the retaining mechanism removably secures the force member at the predetermined position.

11. The apparatus of Claim 10, wherein the retaining mechanism includes:  
a positioner disposed on the force member; and  
a plurality of limiters disposed on opposing sides of the predetermined position  
and configured to engage the positioner to secure the force member at the  
predetermined position.

12. The apparatus of Claim 11, wherein the positioner includes a widened element disposed on the force member and each of the limiters includes a guide having an inner width narrower than an outer width of the widened element such that, once the widened element is installed between the guides, the widened element can be removed from between the guides only with application of a removal force sufficient to deform at least one of the widened element of at least one of the guides.

13. The apparatus of Claim 12, wherein the widened element is installable between the guides by deforming at least one of the widened element and one of the guides.

14. The apparatus of Claim 1, further comprising a force distribution member configured to receive the securing force applied on the closure by the force member and distribute the securing force over an area wider than a width of the force member.

15. The apparatus of Claim 14, wherein the force distribution member includes a distribution panel disposed between the force member and an interior surface of the closure, the distribution panel having a panel width wider than the width of the force member.

5 16. The apparatus of Claim 15, wherein the distribution panel includes at least a semi-rigid material.

17. The apparatus of Claim 16, wherein the distribution panel is integrated within the force member.

18. The apparatus of Claim 16, wherein the distribution panel is integrated within the closure.

10 19. The apparatus of Claim 16, wherein the distribution panel includes at least one of an impact shield, a flex limiter, and an energy return panel covering at least an exposed portion of the closure.

20. The apparatus of Claim 19, wherein the distribution panel is removable.

15 21. The apparatus of Claim 20, wherein the force member is fixably attached to the distribution member.

22. The apparatus of Claim 1, wherein the fastener is a first closure line configured to secure the closure on the footwear item.

23. The apparatus of Claim 22, wherein the first closure line includes one of a lace and a cable.

20 24. The apparatus of Claim 1, wherein the fastener is a second closure line separate from the first closure line.

25. The apparatus of Claim 1, wherein the fastener is a securable strap.

25 26. The apparatus of Claim 25, wherein the fastener includes a strap member and a buckle member, the buckle member being coupled to a first end of the strap member and configured to nonslidably engage a second end of the strap member.

27. An apparatus for securing a foot of a wearer in a footwear item, the footwear item having an opening to receive a foot disposed generally opposite to a heel section of the footwear item and a closure configured to secure the opening, the apparatus comprising:

pivot members disposed on opposing sides of the closure, each of the pivot members being positioned on a surface of the footwear item between the opposing sides of the closure and the heel section; and

a removable securing device including:

a plurality of end sections, each of the end sections including a fastener-receiving opening configured for a fastener to pass therethrough;

a force member extending from the end sections and configured to curve around the pivot members and engage the closure such that tension applied to the fastener applies force to the end sections resulting in tension in the force member causing a securing force being applied against the closure; and

a retaining device retaining device configured to removably secure the force member to the footwear item.

28. The apparatus of Claim 27, wherein the retaining device is configured to maintain the force member at a predetermined position relative to the closure.

29. The apparatus of Claim 27, wherein each of the pivot members is further secured to a securing harness, the securing harness including a heel strap extending between the pivot members beneath the heel and an Achilles strap extending between the pivot members around an Achilles region.

30. The apparatus of Claim 27, wherein the retaining device includes:

a positioner disposed on the force member; and

a plurality of limiters disposed on opposing sides of the footwear item and configured to engage the positioner to secure the force member to the footwear item.

31. The apparatus of Claim 30, wherein the positioner includes a widened element disposed on the force member and each of the limiters includes a guide having an inner width narrower than an outer width of the widened element such that, once the widened element is installed between the guides, the widened element can be removed from between the guides only with application of a removal force sufficient to deform at least one of the widened element of at least one of the guides.

32. The apparatus of Claim 31, wherein the widened element is installable between the guides by deforming at least one of the widened element and one of the guides.

33. The apparatus of Claim 27, further comprising a force distribution member configured to receive the securing force applied on the closure by the force member and  
5 distribute the securing force over an area wider than a width of the force member.

34. The apparatus of Claim 33, wherein the force distribution member includes a distribution panel disposed between the force member and an interior surface of the closure, the distribution panel having a panel width wider than the width of the force member.

35. The apparatus of Claim 34, wherein the distribution panel includes at least a semi-  
10 rigid material.

36. The apparatus of Claim 35, wherein the distribution panel is integrated within the force member.

37. The apparatus of Claim 35, wherein the distribution panel is integrated within the closure.

15 38. The apparatus of Claim 35, wherein the distribution panel includes at least one of an impact shield, a flex limiter, and an energy return panel covering at least an exposed portion of the closure.

39. The apparatus of Claim 38, wherein the distribution panel is removable.

20 40. The apparatus of Claim 39, wherein the force member is fixably attached to the distribution member.

41. The apparatus of Claim 27, wherein the fastener is a first closure line configured to secure the closure on the footwear item.

42. The apparatus of Claim 41, wherein the first closure line includes one of a lace and a cable.

25 43. The apparatus of Claim 27, wherein the fastener is a second closure line separate from the first closure line.

44. The apparatus of Claim 27, wherein the fastener is a securable strap.

45. The apparatus of Claim 44, wherein the fastener includes a strap member and a buckle member, the buckle member being coupled to a first end of the strap member and configured to nonslidably engage a second end of the strap member.

46. A footwear system comprising:

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a boot, the boot including:

a sole;

an upper joined to the sole and having an inner surface for encasing a foot of a wearer and an outer surface;

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an opening in a face of the upper generally opposed to a heel section of the boot configured to receive a heel of the foot of the wearer; and

a closure configured to secure the opening; and

pivot members disposed on the opposing sides of the closure, each of the pivot members being positioned on a surface of the boot between the opposing sides of the closure and the heel section; and

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a removable securing device including:

a plurality of end sections, each of the end sections including a fastener-receiving opening configured for a fastener to pass therethrough; and

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a force member extending from the end sections and configured to curve around the pivot members and engage the closure such that tension applied to the fastener applies force to the end sections resulting in tension in the force member causing a securing force being applied against the closure.

47. The system of Claim 46, wherein each of the pivot members includes at least one pivot slot formed in the surface of the footwear item.

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48. The system of Claim 47, wherein each of the pivot members includes a single pivot slot in the surface of the footwear item, such that the force member extends from the end sections, enters beneath the surface of the footwear item, and curves around the single pivot slot toward the closure.

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49. The system of Claim 47, wherein each of the pivot members includes a pair of pivot slots in the surface of the footwear item, such that the force member extends from the end sections, enters beneath the surface of the footwear item, and curves toward the closure at a first pivot slot, and the force member extends outside the surface of the footwear item and continues extending toward the closure at a second pivot slot.


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50. The system of Claim 46, wherein each of the pivot members includes a ring mounted on the outer surface of the footwear item, such that the force member extends from the end sections and curves around the ring toward the closure.

51. The system of Claim 50, wherein each of the pivot members is further secured to a securing harness, the securing harness including a heel strap extending between the rings beneath the heel and an Achilles strap extending between the rings around an Achilles region.

52. The system of Claim 46, wherein the force member includes a strap and the fastener-receiving openings are formed by folding back ends of the strap and attaching the ends of the strap to a body of the strap.

53. The system of Claim 46, wherein each of the end sections includes a loop coupled to ends of the force member.

54. The system of Claim 46, further comprising a retaining mechanism configured to maintain the force member at a predetermined position relative to the closure.

55. The system of Claim 54, wherein the retaining mechanism removably secures the force member at the predetermined position.

56. The system of Claim 55, wherein the retaining mechanism includes:  
a positioner disposed on the force member; and  
a plurality of limiters disposed on opposing sides of the predetermined position and configured to engage the positioner to secure the force member at the predetermined position.

57. The system of Claim 56, wherein the positioner includes a widened element disposed on the force member and each of the limiters includes a guide having an inner width narrower than an outer width of the widened element such that, once the widened element is installed between the guides, the widened element can be removed from between the guides only with application of a removal force sufficient to deform at least one of the widened element of at least one of the guides.

58. The system of Claim 57, wherein the widened element is installable between the guides by deforming at least one of the widened element and one of the guides.

59. The system of Claim 46, further comprising a force distribution member configured to receive the securing force applied on the closure by the force member and distribute the securing force over an area wider than a width of the force member.

60. The system of Claim 59, wherein the force distribution member includes a distribution panel disposed between the force member and an interior surface of the closure, the distribution panel having a panel width wider than the width of the force member.

61. The system of Claim 60, wherein the distribution panel includes at least a semi-rigid material.

62. The system of Claim 61, wherein the distribution panel is integrated within the force member.

63. The system of Claim 61, wherein the distribution panel is integrated within the closure.

64. The system of Claim 61, wherein the distribution panel includes at least one of an impact shield, a flex limiter, and an energy return panel covering at least an exposed portion of the closure.

65. The system of Claim 64, wherein the distribution panel is removable.

66. The system of Claim 65, wherein the force member is fixably attached to the distribution member.

67. The system of Claim 46, wherein the fastener is a first closure line configured to secure the closure on the footwear item.

68. The system of Claim 67, wherein the first closure line includes one of a lace and a cable.

69. The system of Claim 46, wherein the fastener is a second closure line separate from the first closure line.

70. The system of Claim 69, wherein the fastener is a securable strap.



71. The system of Claim 70, wherein the fastener includes a strap member and a buckle member, the buckle member being coupled to a first end of the strap member and configured to nonslidably engage a second end of the strap member.

72. The system of Claim 46, wherein the footwear item includes one of a skate, a ski boot, and a snowboarding boot.

73. The system of Claim 46, wherein the closure includes one of tongue and a flap.

74. A method for securing a foot of a wearer in a heel section of a footwear item, the footwear item having an opening to receive a foot disposed generally opposite to a heel portion of the footwear item, and a closure configured to secure the opening, the method comprising:

slidably connecting each of a pair of fastener-receiving ends of a force-bearing member to a fastener on opposing sides of the closure;

extending the force-bearing member across the closure;

wrapping the force-bearing member around a pair of pivot members, each of the pivot members being disposed between the lace and the heel section of the footwear item;

tightening the fastener causing tension to be induced in the force-bearing member such that the tension in the force-bearing member generates a securing force at a point where the force-bearing member engages the closure; and

removably retaining the force-bearing member at a predetermined position relative to the closure.

75. The method of Claim 74, wherein the force-bearing member includes a strap.

76. The method of Claim 74, further comprising distributing the securing force over an area larger than an area covered by the force-bearing member.

77. A method for securing a foot of a wearer in a heel section of a footwear item, the footwear item having an opening to receive a foot disposed generally opposite to a heel portion of the footwear item, and a closure configured to secure the opening, the method comprising:

slidably connecting each of a pair of fastener-receiving ends of a force-bearing

member to a fastener on opposing sides of the closure;

extending the force-bearing member across the closure;

wrapping the force-bearing member around a pair of pivot members, each of the pivot members being disposed between the lace and the heel section of the footwear item;

5 tightening the fastener causing tension to be induced in the force-bearing member such that the tension in the force-bearing member generates a securing force at a point where the force-bearing member engages the closure; and  
removably securing the force-bearing member to the footwear item.

10 78. The method of Claim 77, further comprising securing the force-bearing member to the footwear item by fixably attaching a plurality of guides to the footwear item and coupling a retaining member to the force member such that the guides maintain the retaining member between the guides.

15 79. The method of Claim 78, wherein at least one of the guides and the retaining member is deformable such that the force-bearing member can be installed and removed from the footwear item by applying a deforming force sufficient to remove the retaining member from between the guides.

80. The method of Claim 77, further comprising securing the force-bearing member to a removable panel disposed over the closure.

